Rajalakshmi Engineering College

Name: Elango G
Email: 241501055@rajalakshmi.edu.in
Roll no: 241501055
Phone: 7010568330
Branch: REC
Department: I AI & ML FA
Batch: 2028
Degree: B.E - AI & ML

Scan to verify results

NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 6_COD_Question 5

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : Coding

1. Problem Statement

Jose has an array of N fractional values, represented as double-point numbers. He needs to sort these fractions in increasing order and seeks your help.

Write a program to help Jose sort the array using the merge sort algorithm.

Input Format

The first line of input consists of an integer N, representing the number of fractions to be sorted.

The second line consists of N double-point numbers, separated by spaces, representing the fractions array.

Output Format

The output prints N double-point numbers, sorted in increasing order, and rounded to three decimal places.

Refer to the sample output for formatting specifications.

Sample Test Case

Input: 4
0.123 0.543 0.321 0.789

Output: 0.123 0.321 0.543 0.789

Answer

```
#include <stdio.h>
#include <stdlib.h>

// You are using GCC
int compare(double a, double b) {
    //Type your code here
     return a < b;
}
void merge(double arr[], int l, int m, int r) {
    //Type your code here
    int n1 = m - l + 1;
    int n2 = r - m;
    double L[n1], R[n2];
    for (int i = 0; i < n1; i++)
        L[i] = arr[l + i];
    for (int j = 0; j < n2; j++)
        R[j] = arr[m + 1 + j];
    int i = 0, j = 0, k = l;
    while (i < n1 && j < n2) {
        if (compare(L[i], R[j])) {
            arr[k++] = L[i++];
        } else {
            arr[k++] = R[j++];
        }
    }
    while (i < n1)
        arr[k++] = L[i++];
    while (j < n2)
```

```
        arr[k++] = R[j++];
    }
    void mergeSort(double arr[], int l, int r) {
        //Type your code here
        if (l < r) {
            int m = l + (r - l) / 2;
            mergeSort(arr, l, m);
            mergeSort(arr, m + 1, r);
            merge(arr, l, m, r);
        }
    }

    int main() {
        int n;
        scanf("%d", &n);
        double fractions[n];
        for (int i = 0; i < n; i++) {
            scanf("%lf", &fractions[i]);
        }
        mergeSort(fractions, 0, n - 1);
        for (int i = 0; i < n; i++) {
            printf("%.3f ", fractions[i]);
        }
        return 0;
    }
```

Status : Correct **Marks : 10/10**